

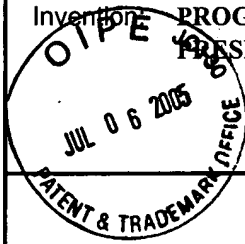
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TRANSMITTAL OF APPEAL BRIEF (Small Entity)	Docket No. NEXT.1000
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In Re Application Of: CARRABIS

Application No. 10/071,731	Filing Date February 7, 2002	Examiner Channavajjala	Customer No. 26812	Group Art Unit 2164	Confirmation No. 2985
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Invention: PROGRAMMABLE METHOD AND APPARATUS FOR REAL-TIME ADAPTATION OF PRESENTATIONS TO INDIVIDUALS
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COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:

☒ Applicant claims small entity status. See 37 CFR 1.27

The fee for filing this Appeal Brief is: **\$250.00**

- ☐ A check in the amount of the fee is enclosed.
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Dated: **July 1, 2005**

Todd A. Sullivan, Reg. No. 47,117

Customer No. 26812

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I. REAL PARTY IN INTEREST

The real party in interest of the instant application is Joseph Carrabis, the sole inventor and a resident in the State of New Hampshire.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 1-18 are pending in the application. Claims 1-18 stand finally rejected under 35 U.S.C. §103(a). The Applicant hereby appeals the foregoing final rejection for claims 1-18.

IV. STATUS OF THE AMENDMENTS

One office action response was filed after the final Office Action. The response was filed on April 19, 2005 and did not contain any claim amendments. In fact, the claims have not been amended since the original filing.

Accordingly, the claims attached hereto in Appendix A reflect the office action responses of November 2, 2004 and April 19, 2005.

V. SUMMARY OF THE INVENTION

As described in the first and second paragraph of page 23 of the original disclosure, the application describes a method and system of obtaining

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information regarding an environment of an individual using a programmable device. The method involves **sensing a psychomotor behavioral element** of an activity engaged by the individual. The type of activity engaged by the individual can be any senseable activity (that is, any activity able to be sensed) under the sun. The method further involves determining the preferred modalities of the individual based on the psychomotor behavioral element of the activity engaged by the individual. In the present context, the preferred modalities are conscious or nonconscious desires of the individual, indicated by nonconscious actions or nonconscious elements of conscious actions, to experience her environment in a specific manner. The information obtained by the inventive method can be used in several ways. One way to use the information obtained is by automatically altering the environment.

VI. CONCISE STATEMENT OF THE ISSUE PRESENTED FOR REVIEW

The issue in this appeal is whether claims 1-18 are patentable over the cited references, with regards to
35 U.S.C. §103(a).

VII. GROUPING OF THE CLAIMS

Claims 1, 11, 12, and 18 are part of claim group I and stand or fall together. Claims 2, 3, 10, 13, 16, and 17 are part of claim group II and stand or fall together. Claims 4, 5, 14, and 15 are part of claim group III and stand or fall

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together. Claims 6-8 are part of claim group IV and stand or fall together. Claim 9 is part of claim group V and stands or falls together.

VIII. ARGUMENT

A. Case Law of U.S.C. §103(a)

It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited combination of references must teach, disclose, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. See, e.g., In re Dow Chemical, 5 U.S.P.Q. 2d 1529, 1531 (Fed. Cir. 1988), and In re Keller, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

B. Claim Group I

1. **US Patent No. 6,018,682 to Rise in View of U.S. Patent No. 5,682,882 to Lieberman Fail to Teach, Disclose, or Suggest Each Element of the Claims**

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On page 2 of the final Office Action, claims 1, 11, 12, and 18 are rejected under 35 U.S.C. §103 as allegedly being obvious over U.S. Patent No. 6,018,682 to Rise (hereinafter "Rise") in view of U.S. Patent No. 5,682,882 to Lieberman (hereinafter "Lieberman").

2. Independent Claims 1 and 12

Applicant respectfully submits that independent claims 1 and 12 are distinguishable over the present combination of references in that independent claims 1 and 12 recite features and steps that are neither disclosed, taught, nor suggested by the prior art of record. Independent claims 1 and 12 are set forth below.

Independent claim 1 provides as follows:

1. A method of obtaining information regarding an environment for an individual, having preferred modalities and engaged in activity, using a programmable device, said method comprising the steps of:
 - sensing at least one psychomotor behavioral element of the activity engaged by the individual; and
 - determining the preferred modalities of the individual based on the psychomotor behavioral element of the activity engaged by the individual.

Independent claim 12 provides as follows:

12. A programmable apparatus for obtaining information regarding an environment to an individual having preferred modalities, said apparatus comprising:

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at least one sensor for sensing
psychomotor behavioral activity of the individual;
and

a processing unit connected to the
sensor for receiving the sensed psychomotor
behavioral activity and calculating the
individual's preferred modalities based on the
sensed psychomotor behavioral activity.

3. The Examiner's Rejection

It is stated in the final office action, on pages 2 and 3, that:

As to claims [1, 12, and 18] Rise teaches a system which including 'method of obtaining information regarding an environment for an individual having preferred modalities and engaged in activity using a programmable device' [see Abstract, fig 3, col 1, line 10-17], environment for an individual corresponds to Rise's recurrent seizures, which are the outward manifestation, 'sensing at least one psychomotor behavioral element of the activity engaged by the individual' [col 2, line 61-67, col 3, line 1-3, fig 3], Rise specifically teaches for example sensor element 20 that produces physiological signal based on specific environment for an individual that corresponds to sensing or detecting onset of seizures, 'psychomotor behavior element of the activity engaged by the individual' [col 5, line 30-47], however Rise does not specifically teach "determining the preferred modalities of the individual'. On the other hand, Lieberman teaches a system which including 'determining the preferred modalities of the individual' [see Abstract, col 3, line 38-47].

It would have been obvious to one of the ordinary skill in the art at the time of applicants invention to incorporate the teachings of Lieberman into implant able warning system of Rise because both are directed to sensory stimulation to the individual that related to electrical, chemical and physiological activity of a person [see Rise: Abstract, col 3, line 42-45; Lieberman: Abstract, col 3, line 32-38]. One of the ordinary skill in the art at the time of applicants invention would have motivated to combine the reference because that would have allowed users of Rise's implant able warning system to control which relative combinations of individual behavior elements

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of the activity satisfies his or her needs as suggested by Lieberman [col 3, line 60-64].

Then, on page 4, it is further stated in the final Office Action that:

As to Claim 11, the limitations of this claim have been noted in the rejection of claim 1 above. In addition, Rise teaches 'psychomotor behavioral element' [see fig 3-4].

4. Discussion of the Cited References

Rise discloses an invention designed to foresee the onset of seizures with the hope of preventing them. As discussed in the background of *Rise*, seizures are the outward manifestation of excessive and/or hyper-synchronous abnormal electrical activity of the neurons in the cerebral cortex of the brain. When a seizure hits, individuals lose at least partial control of their body. Techniques for treating seizure disorders are generally based upon modifying neuron activity of the brain. The effect of seizures on psychomotor skills is the consciousness becomes clouded for a couple of minutes.

Rise's invention is related to a sensor, which is designed to be implanted within the skull of an individual. The sensor is a device capable of detecting nerve cell or axon activity that is related to the pathways at the cause of a seizure symptom, or that indicates sensations which are elicited by the onset of a seizure. As preferred, the sensor is located deep in the brain parachyma and may further include electrodes for extending depth. "Alternatively, the electrodes may be inserted into the seizure focus or ***part of the central nervous system where seizures begin (Emphasis Added)***." *Rise*, column 4, lines 53-65. *Rise* identifies other prospective sensor locations, including the

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surface of the skull for detecting brain EEG/ECOG, the ventricular space of the brain using a chemical sensor, and on nerve cells or muscles controlling heart rate and/or respiration. The alternatives also provide for the sensor not being implanted, but communicating via telemetry to implanted elements.

Electrodes are positioned to stimulate the nervous system either under the skin or through the spinal cord. When the sensor determines a seizure is likely to occur, the sensor may initiate the electrodes to stimulate the nervous system in such a way as to prevent the seizure or, at least, alert the individual to allow the individual to make sure the seizure will not leave him/her in harms way (such as by pulling a vehicle over). There is no suggestion in *Rise* that an alerted individual can assert mental control avoid the seizure once alerted.

Lieberman discloses an invention for monitoring the vigilance of an individual. As the background describes, even highly motivated, well-trained individuals are unable to sustain optimum levels of alertness when they are required to be alert for long periods of time. The invention can monitor the human subject's vigilance, level of physical activity and other physiological, physical, and chemical variables pertaining to the subject and his environment. The invention can be used to prevent and/or intervene upon fatigue impaired performance.

The Lieberman invention operates by stimulating the subject audibly, visually, or kinesthetically. The subject, upon receiving one or more stimuli, responds through one or more response sensors. The basic operation of the invention (as discussed at the bottom of column 8, and throughout columns 9

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and 10) is to determine alertness based primarily on the amount of time the subject requires to respond, relative to the initiation of stimuli. As outlined in column 8, lines 42 and 43, the invention has seven modes, but the variation in modes seems to be directed toward how the response time data is interpreted (compared to a response time history or compared to response time requirements) and how it is used (saved, setting off an alarm, etc.). Therefore, the invention basically measures how quickly a subject responds to commands, which is vital to military activities.

5. **Patentable Distinctions Between the Present Claims and the Cited References**

a. **Sensing at least one psychomotor behavioral element**

In marked contrast to Rise, Applicant respectfully submits that the present invention includes a system and method for sensing at least one ***psychomotor*** behavioral element of an activity engaged by the individual. As illustrated in FIG. 1 of the original disclosure, the Applicant's invention, more definitively, senses at least one activity by the individual and identifies at least one psychomotor behavioral element of the activity (although, as discussed herein, some activities may not have any psychomotor behavioral elements).

Here is a list of terms that may be helpful in this discussion (all taken from Merriam-Webster's Collegiate Dictionary, 11th Ed.):

- Psychomotor – of or relating to motor action directly proceeding from mental activity.
- Mental – of or relating to the total emotional and intellectual response of an individual to external reality.

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- Psychology – the science of mind and behavior.
- Mind – the element or complex of elements in an individual that feels, perceives, thinks, wills, and esp. reasons; the organized conscious and unconscious adaptive mental activity of an organism.
- Behavior – the response of an individual, group, or species to its environment.
- Environment – the circumstances, objects, or conditions by which one is surrounded.
- Neurology – the scientific study of the nervous system esp. in respect to its structure, functions, and abnormalities.
- Brain – the portion of the vertebrate central nervous system enclosed in the skull and continuous with the spinal cord ... that is composed of neurons and supporting and nutritive structures (as glia) and that integrates sensory information from inside and outside the body in controlling autonomic function (as heartbeat and respiration), in coordinating and directing correlated motor responses, and in the process of learning.

Psychomotor activities cannot be discussed comprehensively without mentioning neuroscience and neuromotor activities (which are discussed, although not labeled, in the application). Psychomotor activity is motor activity proceeding from mental activity - that is an emotional or intellectual responsive action to an external reality. However, any motor activity requires a nervous system with some functionality, such as muscles responding to signals from the brain, which is studied by neurology. Therefore, psychomotor activity cannot be expressed (as presently understood by science) without neuromotor activity.

Most activities in which a body engages have a neuromotor element and a psychomotor element (one is not a subset of the other, but they may both be a subset of an activity). Smiling, for instance, has a neuromotor element. The brain must tell the facial muscles to move in a manner that causes, for instance, one or both corners of the mouth to rise. Smiling also has a psychomotor element. An individual's feelings, perceptions, and thoughts have an effect on

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how the individual smiles. If a device were made to only sense whether someone was smiling, it would only be sensing a neuromotor activity and it would not teach the Applicant's invention or infringe the Applicant's claim. If a device were made that could sense a person's feelings, perceptions, or will by how that person was smiling (is the person amused, uncomfortable, forcing the smile to appease another person, or trying to mask hostility?), it would be teaching a significant element of the Applicant's invention.

Occasionally, a life form can engage in neuromotor activity without engaging in psychomotor activity. History contains many examples of cadavers sitting up, twitching, etc., and all such activity is the result of either a gas buildup in the cadaver or random electric activity in the nerves (neuromotor system). The dead person is mentally incapable of expressing feelings, perception, or reason, but the nervous system of the corpse may be made temporarily active by electrical current. Similarly, a seizure will result in neuromotor activity without psychomotor activity. A person having a seizure has no mental ability to control or affect their neuromotor activity. A person having a seizure cannot express feelings, perception, or reason during the seizure. A person cannot mentally initiate a seizure (again a seizure is a neural activity, specifically an imbalance within and between nerve cells in the body, as described in the attached "What is Epilepsy").

As a seizure does not have a psychomotor element, it is impossible (based at least on known scientific possibilities) to sense a psychomotor element within a seizure. You cannot sense an emotion or thought of a person

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during a seizure based on their actions. Rise teaches as much, indicating that the "psychomotor form of seizures is characterized by a clouding of consciousness" (col. 1, lines 24-25); a seizure causes a patient to lose control of his/her body (col. 1, lines 34-36); a seizure is caused by "synchronization" of electrical activity in the brain (col. 1, lines 14-16); and reducing the excitation of neurons in the brain increases the threshold for seizures (col. 1, lines 47-49). Rise implicitly understands that seizures are a neurological issue (with various references to neurosurgeons, neurology, and neurons) as opposed to a psychological issue.

Rise further indicates, both in referring to its own warning system and those of the prior art, that the warning system does not allow a patient to stop or interrupt the seizure, it only allows the patient to be aware it is oncoming and to act accordingly. A patient cannot stop a seizure when warned because seizures cannot be mentally controlled. The only means Rise teaches for interrupting the onset of a seizure is the implantation of electrodes for a painful stimulus at a nerve center that may "desynchronize" the electrical activity of the brain. Understanding that seizures are a "mechanical" problem with the brain unrelated to mental activity is key to understanding why the Rise reference cannot teach sensing a psychomotor behavioral element.

The Final Office Action, on page 7, states that Rise "is directed to techniques for early warning to a patient or individual of possible behavioral change." This statement is flawed because, using the definition of behavior provided above, a seizure is not a response of an individual to his environment.

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A seizure is an effect caused by synchronization of electrical activity in the brain. A seizure is not behavior, a seizure is not psychomotor behavior and, most importantly, a seizure lacks a psychomotor behavioral element.

Rise teaches sensing a seizure or the onset thereof. As a seizure or the onset thereof does not, cannot by definition, involve psychomotor behavioral activity, sensing a seizure or the onset thereof cannot involve sensing a psychomotor behavioral activity. Rise teaches sensing neural activity or the chemical presence of neural transmitter substances (col. 4, line 53 – col. 5, line 47). Rise, by definition of a seizure, does not teach sensing an activity that contains a psychomotor behavioral element. Therefore, Rise does not teach, disclose, or suggest sensing a psychomotor behavioral element and the Final Office Action does not suggest Lieberman teaches, discloses, or suggests sensing a psychomotor behavioral element.

b. **Determining the preferred modalities of the individual**

In sharp contrast with Lieberman, the Applicant's invention is capable of determining a preferred modality of an individual. As stated in paragraph 12 of the original disclosure:

The present invention results from the realization that an individual's environment can be automatically manipulated to being more consistent with preferred modalities (wherein a modality is a mode of behavior or operation) of the individual, without receiving consciously entered opinion or personal information from the individual and without the use of generalized demographic information regarding a group with whom the individual is associated, by sensing and interpreting psychomotor behavioral activity engaged in by the individual.

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As defined in the original disclosure, preferred modalities are preferred modes of behavior or operation. The Applicant's invention, as claimed, determines the preferred modalities of the individual based on psychomotor behavioral elements of their activity. As explained in the disclosure, this determining the preferred modalities based on psychomotor behavioral elements means not having to receive consciously entered opinion.

The final office action, on page 8, suggests Lieberman teaches determining a preferred modality in the passage at column 3, lines 38-44, as follows:

Another advantage of the invention is that it can assess and maintain vigilance based on a combination of inputs including, but not limited to: motor activity of the individual subject, environmental conditions, and the responsiveness of the individual subject to stimuli generated by the vigilance monitor system.

The Final Office Action suggests this passage means the Lieberman invention provides "early warning of mental and physical performance of an individual, modalities of individuals dependent on environmental condition, responsiveness of the individual." Lieberman teaches an invention, which reaches a conclusion on the alertness of an individual based on how quickly the individual responds to specific stimuli. Much like Pavlov's dog, the subject is expected to respond to the stimuli reflexively. The slower the reflexes, the less alert the subject.

Reviewing Lieberman as a whole, the invention is not directed toward, or interested in, the preferred modes of behavior or operation of the subject. The invention pings the subject, to which the subject is required to provide a reflex action for the invention to operate effectively, and decides if the subject is

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sufficiently alert based on the subject's reflexes. Whether the subject prefers to be alert, prefers to respond quickly to the stimuli, or prefers auditory or visual stimuli is not determined by the invention. As defined in the passage above, from the original disclosure, a modality is a mode of operation or behavior. Lieberman does not seek to determine the subject's preferred mode of operation. Lieberman does not seek to determine the subject's preferred mode of behavior. Lieberman only seeks to determine alertness based on reflex action.

Therefore, Lieberman does not teach, disclose or suggest determining preferred modalities of an individual and the Final Office Action admits that Rise does not teach, disclose, or suggest determining the preferred modalities of an individual.

As can readily be seen, the Applicant's claim is limited to sensing psychomotor behavior elements, rendering the claim allowable in view of Rise and Lieberman, and the Applicant's claim is limited to determining preferred modalities of an individual, further rendering the claim allowable in view of Rise and Lieberman. Therefore, the Applicant respectfully requests submits claims 1 and 12 are allowable in that they recite features and steps that are neither disclosed, taught, nor suggested by Rise in view of Lieberman. Furthermore, the Applicant submits that claims 2-11 and 13-18 are allowable for at least the reason that they depend either directly or indirectly from allowable independent claims. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

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C. Claim Group II

1. US Patent No. 6,018,682 to Rise in View of U.S. Patent No. 5,682,882 to Lieberman Fail to Teach, Disclose, or Suggest Each Element of the Claims

On pages 3-5 of the final Office Action, claims 2, 3, 10, 16, and 17 are rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman. On page 5 of the final Office Action, claim 13 is rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman, and further in view of U.S. Patent No. 5,717,825 to Lamblin (hereinafter "Lamblin"). The limitations of Claim Group II are all directed toward modification of an environment of the individual whose activity is being sensed.

2. The Examiner's Rejection

It is stated in the final office action, on page 4, that "Rise teaches a system which including modifying at least one modifiable environmental unit to at least partially conform to the preferred modalities [col 5, line 12-20]" with regards to claim 2. It is stated in the final office action, on page 4, that "Rise teaches a system which including environment unit is modified in real time [col 5, line 38-47]" with regards to claim 3. It is stated in the final office action, on page 4, that "Rise teaches multi-dimensional and has a plurality of modifiable environmental units [col 8, line 51-61]" with regards to claim 10. It is stated in the final office action, on page 5, that "Rise teaches a system which including sensed psychomotor behavioral element is stored [see fig 3, co 4, line 41-52], it

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is noted that both Rise and Lieberman do not specifically linear algebraic transforms" with regards to claim 13.

It is stated in the final office action, on page 9, and in response to the Applicant's statement "it is unclear how a sensor [of Rise] can be used to modify an environmental unit," that "sensor is not used to modify an environmental unit, but primary sensor may sense physiological changes, while chemical sensor which is inside the body or implanted may sense or detect chemical substance, therefore, it is clear that modifiable environmental may be based on either chemical sensor implanted in the body or physiological changes which is physically located outside the body [see col 5, line 45-47]" in relation to claim 2.

3. Discussion of the Cited References

Rise discloses an invention designed to foresee the onset of seizures with the hope of preventing them, as discussed in relation to section VIII.B.4., above. With regards to the Claim Group II claims, *Rise* teaches a sensor may be implanted in the body for sensing a body attribute indicative of the onset of a seizure (Col. 4, lines 41-52). *Rise* teaches a chemical sensor implanted in the brain for detecting neurotransmitter substances related to seizures (Col. 5, lines 12-20). *Rise* also teaches sensors that may be connected to muscles (Col. 5, lines 38-45). *Rise* also teaches sensors may be located outside the body and communicate to implants through telemetry (Col. 5, lines 45-47). *Rise* also teaches implanting electrodes within the skull, under the skin, or otherwise

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within the body to send a warning signal of the possible onset of a seizure (Col. 8, lines 51-61).

4. Patentable Distinctions Between the Present Claims and the Cited References

a. Modifying at least one environmental unit

In marked contrast to Rise, the claimed invention teaches modifying an environmental unit. As discussed in paragraph 78 of the original disclosure, modifying an environmental unit may, for example, take the form of: modifying a computer presentation to reflect the preferred modalities of the user; providing a map to a person whose psychomotor behavior indicates is lost; or modifying light levels in an office, based on the psychomotor behavior of the occupant, to improve productivity. The Applicant's claimed invention modifies the environment of an individual being sensed by modifying an environmental unit.

Rise does not teach modifying an individual's environment. The passages cited as teaching modifying an environmental unit instead teach sensing a physiological/chemical change in an individual. Sensing physiological/chemical changes within an individual does, not modify an environment - the circumstances, conditions, or objects by which one is surrounded. None of the passages identified in the final Office Action even specify an environmental unit of Rise, instead referencing modifiable physiology of an individual and sensors proximate thereto.

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Therefore, Rise does not teach, disclose, or suggest modifying an environmental unit and the Final Office Action does not suggest Lieberman teaches, discloses, or suggests modifying an environmental unit.

b. **To at least partially conform to preferred modalities**

The final Office Action, at page 9, may be read to suggest that the sensors are modifiable environmental units. To the extent that the sensors of Rise may be both the sensors of the independent claims and the modifiable environmental unit of the Claim Group II claims, the sensors are not modified to conform with preferred modalities calculated from sensed psychomotor behavioral elements.

Therefore, Rise does not teach, disclose, or suggest conforming with preferred modalities and the Final Office Action does not suggest Lieberman teaches, discloses, or suggests conforming with preferred modalities.

c. **Claim 13**

Claim 13 was rejected in the final Office Action based, in part, on Lamblin's teaching of algebraic transforms. Claim 13 has no limitation related to algebraic transforms. Claim 13 is dependent on claim 12 and primarily adds the limitation of a modifiable environmental unit to the limitations of claim 12. As such, it is believed claim 13 rises or falls with the other, similar claims of Claim Group II. If claim 13 is correctly being rejected under Lamblin for other reasons, it should be noted that claims 16 and 17 are dependent on claim 13 and should

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then also be rejected under at least all of the references for which claim 13 is rejected.

D. Claim Group III

1. US Patent No. 6,018,682 to Rise in View of U.S. Patent No. 5,682,882 to Lieberman Fail to Teach, Disclose, or Suggest Each Element of the Claims

On page 4 of the final Office Action, claims 4 and 14 are rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman. On page 5 of the final Office Action, claims 5 and 15 are rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman, and further in view of Lamblin. The limitations of Claim Group III are all directed toward storing sensed psychomotor behavioral elements.

2. The Examiner's Rejection

It is stated in the final office action, on page 4, that "Rise teaches a system which including storing the sensed psychomotor behavioral element in a user history [col 7, line 64-67, col 8, line 1-7]" in reference to claim 4. It is stated in the final office action, on page 4, that "Rise teaches store the sensed psychomotor behavioral activity of the individual [col 6, line 4-10, col 7, line 64-67]" in reference to claim 14. It is stated in the final office action, on page 5, that "Rise teaches a system which including sensed psychomotor behavioral

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element is stored [see fig 3, co 4, line 41-52]" and "Lamblin teaches algebraic transforms" in reference to claims 5 and 15.

3. Discussion of the Cited References

Rise discloses an invention designed to foresee the onset of seizures with the hope of preventing them, as discussed in relation to section VIII.B.4., above. With regards to the Claim Group III claims, and the text cited in the final Office Action, *Rise* discloses a clinician may program key parameters into the memory of the implanted device to control operation [Col. 7, lines 64-67, Col. 8, lines 1-7]. *Rise* also discloses the microprocessor may be programmed to implement an algorithm to detect the onset of a seizure and to extract features [Col. 6, lines 4-10]. *Rise* also discloses the sensor is adapted to sense bodily attributes that result in a seizure and provides that data to a signal processor [Col. 4, lines 41-52].

Lamblin discloses a method for digital coding generally and, specifically, digital coding of speech signals. The method uses the technique of code-excited linear prediction (CELP) coding with algebraic codebook. The algebraic codebook is defined on the basis of at least one group of N sets of possible pulse positions in codes of at least L samples, a code from the codebook being represented by N pulse positions belonging respectively to the N sets of a group. The search for the CELP excitation includes a calculation of certain components of a covariant matrix. Some components of the covariant matrix are stored in memory. Those components are of the form:

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$$U(\text{pos}_{\text{inp}n}\text{pos}_{\text{inp}})=\sum_{n=\text{pos}_{\text{inp}}}^{L-1} [h(n-\text{pos}_{\text{inp}})]^2$$

4. **Patentable Distinctions Between the Present Claims and the Cited References**

a. **Storing sensed information**

In marked contrast to Rise, the claimed invention teaches storing sensed information in a user history. The final Office Action cited to three different passages in Rise to suggest Rise teaches this claim limitation. Some of the passages suggested storing information in a memory, such as algorithms and other program parameters. None of the cited references suggested storing information retrieved by the sensor into memory. Arguably, Rise did not have a purpose for the sensed data beyond initiating the electrodes in real-time, hence no need for a user history. Regardless, Rise did not teach, disclose, or suggest storing sensed information in a user history and did not suggest such information would be usefully stored in a user history. The claimed invention, in some embodiments, determines and sorts preferred modalities over time and, as such, a user history has utility in the operation of the claimed invention.

Therefore, Rise does not teach, disclose, or suggest storing sensed information in a user history and the final Office Action does not suggest Lieberman teaches, discloses, or suggests storing sensed information in a user history.

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b. Linear algebraic transforms

In marked contrast to Lamblin, the claimed invention teaches storing sensed information in terms of preferred representational geometries via linear algebraic transforms. To the Applicant's reading, neither the passage cited in the final Office Action, nor any other text in Lamblin, teaches or suggests storing information in the form of linear algebraic transforms.

Page 10 of the final Office Action mentions Lamblin is directed to linear prediction coding methods employing algebraic transforms. The final Office Action states the algebraic transforms of Lamblin are used for sampling and analyzing waveforms and, therefore, it would have been obvious to the users of Rise/Lieberman to utilize the teachings of Lamblin to analyze waveforms. However, the algebraic transforms disclosed in Lamblin are not linear algebraic transforms. Further, the claimed invention is using linear algebraic transforms to store data, not analyze it. Nothing in the cited references suggests storing sensed data and nothing in the cited references suggests storing information using linear algebraic transforms.

Therefore, Lamblin does not teach, disclose, or suggest storing sensed information in terms of preferred representational geometries via linear algebraic transforms and the final Office Action admits neither Rise, nor Lieberman teaches, discloses, or suggests storing sensed information in terms of preferred representational geometries via linear algebraic transforms.

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E. Claim Group IV

1. US Patent No. 6,018,682 to Rise in View of U.S. Patent No. 5,682,882 to Lieberman Fail to Teach, Disclose, or Suggest Each Element of the Claims

On pages 3-5 of the final Office Action, claims 6 and 8 are rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman. On page 5 of the final Office Action, claim 7 is rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman, and further in view of Lamblin. The limitations of Claim Group IV are all directed toward determining a preferred combination of modalities and an ordering thereof.

2. The Examiner's Rejection

It is stated in the final office action, on page 4, that "Rise teaches defining a focus of the individuals attention [col 8, line 8-17]" with respect to claim 6. It is stated in the final office action, on page 6, that "Lamblin teaches co-ordinate group of representational geometry [see col 6, line 53-59]" with respect to claim 7.

3. Discussion of the Cited References

Rise discloses an invention designed to foresee the onset of seizures with the hope of preventing them, as discussed in relation to section VIII.B.4., above. With regards to the Claim Group IV claims, and the text cited in the final Office Action, *Rise* discloses using electrodes implanted within or on the surface

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of a body to alert an individual to the possible onset of a seizure [col 8, line 8-17]. Lamblin discloses a method for digital coding generally and, specifically, digital coding of speech signals, as discussed in Section VIII.D.3., above. With regards to the Claim Group IV claims, and the text cited in the final Office Action, Lamblin discloses the speech signal $s(n)$ is a digital signal, for example provided by an analog/digital converter, which processes amplified and filtered output signal of a microphone. The signal $s(n)$ is digitized as successive frames of samples, which are themselves divided into sub-frames.

4. Patentable Distinctions Between the Present Claims and the Cited References

a. Determining a preferred combination of modalities

In marked contrast to Rise and Lieberman, the claimed invention is limited to determining a preferred combination of modalities. Neither Rise, nor Lieberman, teach, disclose or suggest determining a preferred combination of modalities. Further to this point, neither the first Office Action, nor the final Office Action suggest that Rise or Lieberman teach, disclose, or suggest this limitation.

Therefore, Rise does not teach, disclose, or suggest determining a preferred combination of modalities and Lieberman does not teach, disclose, or suggest determining a preferred combination of modalities.

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b. **Determining ... an ordering of modalities by preference**

In marked contrast to Rise and Lieberman, the claimed invention is limited to determining an ordering of modalities by preference. Neither Rise, nor Lieberman, teach, disclose or suggest determining an ordering of modalities by preference. Further to this point, neither the first Office Action, nor the final Office Action suggest that Rise or Lieberman teach, disclose, or suggest this limitation.

Therefore, Rise does not teach, disclose, or suggest an ordering of modalities by preference and Lieberman does not teach, disclose, or suggest an ordering of modalities by preference.

c. **Defining a focus of the individual's attention**

In marked contrast to Rise and Lieberman, the claimed invention defines where the individual's attention is focused. The claimed invention defines where the individual's attention is focused by determining a preferred combination of modalities and an ordering of modalities by preference for the individual. For instance, the claimed invention may determine that an individual's preferred mode of operation is to receive information audibly and kinesthetically (preferred combination of modalities) and that the individual has a greater preference toward audible information (ordering by preference), thereby determining the focus of the individual is on what he/she is hearing primarily and on what he/she is feeling secondarily. The claimed invention does

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not focus a person's attention, it identifies/observes where the focus of the person's attention is by analyzing the preferred modalities of the individual.

According to the final Office Action, Rise teaches defining a focus of the individual's attention, however defining a focus of the individual's attention is part of a "thereby" clause in the claimed invention. A whereby clause that merely states the result of the limitations in the claim adds nothing to the substance of the claim. Lockheed Martin Corp. v. Space Systems/Loral, Inc., 249 F.3d 1314, 58 USPQ2d 1672 (Fed. Cir. 2001). Even if the cited reference taught the thereby clause, it would not be determinative as to whether the cited reference taught the claimed limitation. Rise does not teach defining a focus of a person's attention; Rise teaches grabbing the focus of a person's attention. Rise does not teach a mechanism for identifying where an individual's attention is focused or even if it is successful in grabbing the attention of an individual. While the question of whether Rise teaches the thereby clause is irrelevant, Rise does not teach the thereby clause.

The final Office Action explicitly states that Rise fails to teach determining the preferred modalities of an individual. Inherent in that statement, Rise must fail to teach determining a combination of the preferred modalities. Rise also fails to teach, disclose, or suggest ordering the combination of preferred modalities. Therefore, Rise cannot be said to teach the limitations of Claim Group IV.

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d. **Modifying the environmental unit to provide content in the environment in the preferred combination of modalities**

In marked contrast to Rise, Lamblin, and Lieberman, the claimed invention is limited to modifying the environmental unit to provide content in the environment in the preferred combination of modalities. Neither Rise, nor Lieberman, nor Lamblin, teach, disclose or suggest modifying the environmental unit to provide content in the environment in the preferred combination of modalities. Further to this point, neither the first Office Action, nor the final Office Action suggest that Rise, Lamblin or Lieberman teach, disclose, or suggest this limitation.

F. **Claim Group V**

1. **Rise in view of Lieberman, and further in view of Lamblin, and further in view of U.S. Patent No. 5,717,825 to Darrell, et al. Fail to Teach, Disclose, or Suggest Each Element of the Claims**

On page 6 of the final Office Action, claim 9 is rejected under 35 U.S.C. §103 as allegedly being obvious over Rise in view of Lieberman, and further in view of Lamblin, and further in view of U.S. Patent No. 5,717,825 to Darrell, et al. (hereinafter "Darrell"). The limitation of Claim Group V is directed toward an equation for calculating the combination and order of modalities.

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2. The Examiner's Rejection

It is stated in the final Office Action, on page 6, that "Darrell suggests modalities calculation [col 10, line 48-67, col 11, line 1-15]" with respect to claim 9. It is further stated in the final Office Action, on page 6, that "Rise, Lieberman, Lamblin do not teach modalities calculation" with respect to claim 9.

3. Discussion of the Cited References

Darrell discloses techniques from computer vision and computer graphics being combined to track a target and perform a function based upon the image and/or identify of the target. Three modules are used to track a user's head: depth estimation, color segmentation, and pattern classification. Each of the modules can also provide an identity classification module with valuable information so that the identity of a user can be estimated. The system can track and respond to a user's face in real-time using completely passive and non-invasive techniques.

Darrell further discloses calculating whether someone has been tracked before, using probability equations related to the modules used to track the user's head [col. 10, line 48 to col. 11, line 15].

4. Patentable Distinctions Between the Present Claims and the Cited References

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a. **The combination and order of modalities is calculated**

In marked contrast to Darrell, the claimed invention calculates a preferred combination of modalities and an ordering of modalities by preference. While the words “preferred” and “preference” are not explicitly used in claim 9, antecedent basis requires that “the combination and order of modalities” identified in claim 9 refer back to the combination and order of modalities identified in claim 6.

Darrell performs a calculation with regards to the modules it teaches. The calculation is used to determine the likelihood an individual has been previously tracked. The calculation can be performed separately for each module, or modality, and then combined. The calculation of Darrell does not result in a preferred combination of modalities and the calculation of Darrell does not result in an ordering of modalities by preference. Darrell makes use of the words “calculated” [col. 10, line 47] and “modalities” [col. 12, lines 33 and 34] on consecutive pages, but the similarities between Darrell and the claimed invention end there.

Therefore, Darrell does not teach, disclose, or suggest calculating a preferred combination of modalities and an ordering of modalities by preference and the final Office Action admits neither Rise, nor Lieberman, nor Lamblin teaches, discloses, or suggests calculating a preferred combination of modalities and an ordering of modalities by preference.

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b. An equation: $\sum_{-\infty}^{\infty} ((\sum G_i (\delta x_i / \delta t)) / (\sum G_i (dx_i / dt))) dG_i dt \propto \Psi(G)$

In marked contrast to Darrell, the claimed invention is limited to the above equation. This limitation is significant and is not taught, suggested, or disclosed in Rise, Lieberman, Lamblin, or Darrell with regards to this claim. Similarly, the final Office Action does not suggest that Rise, Lieberman, Lamblin, or Darrell teach, disclose, or suggest this equation.

5. Rise in view of Lieberman, and further in view of Lamblin, and further in view of Darrell, Fail to Teach, Disclose, or Suggest Combining the References

According to the final Office Action, on page 3, "one of ordinary skill in the art at the time of applicants invention would have motivated to combine the reference because that would have allowed users of Rise's implant able warning system to control which relative combination of individual behavioral elements of the activity satisfies his or her needs as suggested by Lieberman [col 3, line 60-64]" with regards to combining Rise and Lieberman. The Applicant has previously explained that Rise does not sense behavioral elements of the activity. Furthermore, Rise does not teach, suggest, or disclose sensing multiple neurological signals. Arguably, Rise assumes one would not want to have multiple implanted sensors (one or more in the brain, one on the lungs, one on the heart, etc.), possibly because each implant carries certain risks and multiple sensors may be entirely redundant, since they record off of

the same neurological system. Regardless of the reason, Rise does not teach receiving inputs from multiple sensors and, therefore, there is no motivation to use Lieberman to determine which combination of sensor inputs satisfies his/her needs. Therefore, no motivation to combine exists.

According to the final Office Action, on page 5, combining "the Lamblin's algebraic code excited linear predication speech coding with Rise and Lieberman ... would have allowed users of Rise and Lieberman to analyze waveforms that related to psychomotor behavior of humans bring the advantages of analyzing specific samples improving overall system quality." Lieberman, as admitted in the final Office Action, does not teach psychomotor behavior, and, further, does not teach waveforms, which contradicts the motivation provided in the final Office Action for combining Lieberman and Lamblin.

With regards to combining Rise and Lamblin, Lamblin does not teach code-excited linear predication for the purpose of analyzing samples or improving system quality. Lamblin teaches code-excited linear predication for satellite transmission and high volume data storage [Col. 1, lines 12-16]. Rise does not teach either satellite transmission or high volume data storage. Further, the phrase "system quality" does not appear anywhere in Lamblin and appears to be part of a overly presumptive and conclusory statement that all data analysis results in an improved system.

According to the final Office Action, on page 6, incorporating "the teachings of modalities calculation into the combination of Rise, Lieberman,

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Lamblin ... would have allowed users of Rise, Lieberman, Lamblin to use computation modules to receive data, estimate real time modality calculation as detailed in [Darrell] col 10, line 45-67, col 11, line 115], thus improving reliability and versatility of the system." First, as explained herein, the modality calculation cited in Darrell is attempting to identify, through probability calculations, whether a person being tracked was previously tracked, according to one of three personnel identification modules. Rise teaches a sensor implanted in the brain, so it should never have to estimate who it is tracking. More importantly, Rise already makes real-time data computations and calculations to provide real-time warning of the onset of a seizure, so Rise would not need to be combined with Darrell to achieve real-time data. Similarly, Lieberman (which is also attached to someone's person, eliminating identity estimates) teaches vigilance awareness technology that is capable of providing real-time data computations and calculations using modalities (according to the final Office Action) to provide real-time alerts if someone's vigilance is waning, so Lieberman would not need to be combined with Darrell to provide real-time calculations.

Darrell does teach that calculating across multiple modules improves reliability. Specifically, Darrell indicates that facial recognition is unreliable in that it requires time and frontal view of the face. Using multiple modules overcomes the facial recognition shortcomings. However, Rise, Lieberman, and Lamblin do not teach any modules with a shortcoming that must be overcome by combining multiple modules. Indeed, Rise does not even teach a reason to

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have multiple modules. Further, Darrell does not teach that its method "improves versatility of a system", so it is unclear where this conclusory statement originated. Furthermore, as the combination of Rise, Lieberman, and Lamblin provide real-time data and real-time data calculations, there is no motivation for anyone would be motivated to incorporate Darrell.

Therefore, the references of Rise, Lieberman, Lamblin, and Darrell do not teach, motivate, or suggest their combination. The reasons for their combination, as provided in the final Office Action, are presumptive and conclusory and their combination does not advance the teachings of the individual references.

IX. EXAMINER INTERVIEW

An Examiner Interview was held telephonically on March 23, 2005, at 2PM. Examiner Channavajjala, Attorney Todd Sullivan, Patent Agent Amit Singh, and the inventor, Joseph Carrabis participated in the interview. The Applicant scheduled the interview, in part, in an attempt to explain to the Examiner the difference between neuromotor elements of activity and psychomotor elements of activity as well as attempting to better understand the Examiner's interpretation of the claims in an effort to advance the prosecution of the present case. During the interview, the Examiner was unwilling to discuss the Rise and Lieberman references, he resisted and, ultimately, avoided viewing an online demonstration of the invention intended to allow him to better appreciate the invention, and he was unable to view with the Applicant an

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Interview Agenda that had been entered into the PAIRS system more than one week prior to the interview.

More to the point, the Examiner used the Examiner Interview as an opportunity to voice other reasons he was unable to allow the claims, which reasons have not appeared in any written office actions. As a result, while the following arguments have not been presented in a written office action, they have been encountered in the Examiner Interview and are addressed herein.

A. BREADTH OF THE CLAIMS

On multiple occasions during the interview, Examiner Channavajjala expressed an unwillingness to allow the claims as written because he was of the opinion the claims were too broad. Breadth of the claims, without more, is not grounds for rejecting or refusing to allow claims. As laid out in Section 2173.04 of the MPEP, undue breadth of the claim may be addressed in several ways, including: arguing that it is too broad because it is unsupported by the enabling disclosure under 35 U.S.C. 112; arguing that the claims are so broad they fail to set out that which the inventor claims as the invention under 35 U.S.C. 112; and arguing the claims are too broad because they read on the prior art under 35 U.S.C. 102 and 103. The simple fact that the Examiner feels the claims are too broad is not sufficient reason to withhold allowance of the claims.

The Examiner mentioned during the interview that one of the reasons the USPTO cannot allow claims that are too broad is that overly broad patent claims

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may have the unintended consequence of stifling innovation and turning public opinion against the USPTO. While this opinion is a common concern in the world of patents, particularly with regards to national and international concerns regarding software patents, public policy concerns are generally not grounds for withholding allowance of patent claims. The only public policy basis, as identified in the MPEP, that may be used as grounds for a rejection is under 35 U.S.C. 101 for lack of utility. USPTO examiners have more than enough work to do without attempting to determine how claims, once allowed, may affect industry.

The Examiner further suggested that if claims 6, 7, and 9 were combined into claim 1, he may allow that claim. This suggestion is indicative of the desire to get more limitations into the independent claim for the sake of making the claim less broad. The fact that both claim 7 and claim 9 include the limitations of claims 1 and 6 and that claim 7 is rejected based on the same references used to reject claim 9 make this suggestion confounding. Examiner Channavajjala was unable to explain why he believed the combination of these limitations may overcome the teachings of the prior art. Claim allowance should not be based on word count.

B. ADDITIONAL REFERENCES

Examiner Channavajjala asked if the Applicant could produce additional references for him to review, presumably because the references he could locate to date were unsatisfactory. He mentioned that the Applicant would have

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a stronger patent if he could review the most similar art. The short answer is, the Applicant does not believe there is any similar prior art. The Applicant has spent more than fifteen years developing his technology. The technology determines psychomotor behavioral elements in a variety of activities. The Applicant does not believe any other technology exists that can identify psychomotor behavioral elements of activities. To date, people, such as FBI profilers or other similarly skilled individuals have been required to accomplish this task.

One of Examiner Channavajjala's searches was published in the PAIRS system. One of the documents he found was at least relevant to the discussion and that document was submitted by the Applicant, at expense to the Applicant, to further advance prosecution of this application.

Prior art does not exist that teaches the Applicant's claimed invention, which is why the present rejections should be withdrawn.

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Conclusion

In view of the foregoing, it is respectfully requested that the Examiner's rejection of the subject application be reversed.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Appeal Brief – Patents, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on July 1, 2005 at Manchester, New Hampshire.

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1. A method of obtaining information regarding an environment for an individual, having preferred modalities and engaged in activity, using a programmable device, said method comprising the steps of:

sensing at least one psychomotor behavioral element of the activity engaged by the individual; and

determining the preferred modalities of the individual based on the psychomotor behavioral element of the activity engaged by the individual.

2. The method of Claim 1 further comprising modifying at least one modifiable environmental unit to at least partially conform to the preferred modalities.

3. The method of Claim 2 wherein the environment unit is modified in real-time.

4. The method of Claim 1 further comprising storing the sensed psychomotor behavioral element in a user history.

5. The method of Claim 4 wherein the sensed psychomotor behavioral element is stored in terms of preferred representational geometries via linear algebraic transforms.

6. The method of Claim 1 wherein the step of determining preferred modalities includes determining a preferred combination of modalities and an ordering of modalities by preference thereby further defining a focus of the individual's attention.

7. The method of Claim 6 further comprising the step of modifying the environmental unit to provide content in the environment in the preferred combination of modalities and the order of modalities by preference whereby the combination and the order are placed in at least one respective co-ordinate group of representational geometry to which attention of the individual is drawn, as indicated by the psychomotor behavioral element.

8. The method of Claim 6 further comprising:

defining a psychodynamic and a cognitive behavioral model using the preferred combination of modalities and the order of modalities; and

modifying at least one environmental unit as a function of the psychodynamic behavioral model and the cognitive behavioral model.

9. The method of Claim 6 wherein the combination and order of modalities is calculated by an equation: $\sum_{i=1}^{\infty} ((\sum G_i(\delta x_i/\delta t_i))/(\sum G_i(dx_i/dt_i)))dG_i dt_i \propto \Psi(G)$

10. The method of Claim 1 wherein the environment is multi-dimensional and has a plurality of modifiable environmental units.

11. The method of Claim 1 further comprising

preprogramming the device to monitor the individual for at least one specific types of psychomotor behavioral elements; and

communicating an occurrence of the specific type of psychomotor behavioral element.

12. A programmable apparatus for obtaining information regarding an environment to an individual having preferred modalities, said apparatus comprising:

at least one sensor for sensing psychomotor behavioral activity of the individual;
and

a processing unit connected to the sensor for receiving the sensed psychomotor behavioral activity and calculating the individual's preferred modalities based on the sensed psychomotor behavioral activity.

13. The apparatus of Claim 12 further comprising at least one modifiable environmental unit, modified by at least one instruction from the processing unit to at least partially conform the environment to the calculated preferred modality of the individual.

14. The apparatus of Claim 12 further comprising a memory device to store sensed psychomotor behavioral activity of the individual.

15. The apparatus of Claim 14 wherein the processing unit uses stored sensed psychomotor behavioral activity of the individual to refine the preferred modality calculation.

16. The apparatus of Claim 13 wherein the preferred modalities are calculated while sensing psychomotor behavioral activity and concurrently used for modifications to the environmental units.

17. The apparatus of Claim 13 wherein the sensor includes at least one input device for a computer and the modifiable environmental unit includes at least one output device.

18. The apparatus of Claim 12 further comprising an indicator connected to the processing unit, wherein the processing unit is preprogrammed to monitor for specific psychomotor behavioral activity and the indicator indicates at least one of the group consisting of:

- a match between the sensed psychomotor behavioral activity and the specific psychomotor behavioral activity; and

- a nonmatch between the sensed psychomotor behavioral activity and the specific psychomotor behavioral activity.